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REMARKS

Claims 1, 3, 4 and 6-29 are currently pending.

Claims 1, 3, 4 and 6-12 have been rejected under 35 U.S.C. 112, as failing to comply with the written description requirement because the claims are alleged to contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner has taken the position that limitation that "the data is not calibrated" that appears in claims 1, 13 and 17 does not appear to be supported by the specification as originally filed.

Applicants take note that not all of the pending claims have been rejected under paragraph 112. Specifically, claims 13-29 have not been included in the 112 rejection. Should the Examiner issue a 112 rejection for claims 13-29 in response to this amendment, such a rejection would need to be made in a non-final office action.

Claim 1 has been amended to recite a step of "measuring the surface coordinates of the undersurface detected by the at least one laser scanning unit by gathering data which directly correlates to accurate 2-dimensional distance measurements between the at least one laser scanning unit and the underside of the foot, wherein said data is not calibrated *by said at least one laser scanning unit*." (Emphasis added).

As fully disclosed on pages 15-16 of the specification as originally filed:

> Fig. 26 is a block diagram illustrating the signal conditioning algorithm 200 of computer 80 to provide contour data based on an output of scanning station 20.... Input signal I is transmitted from scanning station 20 to computer 80.... and subjected to peak detection function 202 to ascertain potential return signals from the bottom surface of the foot as signal P. **For example, the peak detection method disclosed in U.S. Patent 4,658,368, the disclosure of which is incorporated herein by reference, can be used. Input signal I can also be transmitted, stored, or displayed as a raw video signal for archival or other purposes. Signals P can be displayed for focusing and calibration adjustments.** Region Of Interest (ROI) techniques can be used to speed up real time display. Due to "clutter" from other light sources, such as the ambient light in a store, some of the peaks in signal P may correspond to "false" return signals that are the result of light reflected from sources other than the lasers in laser units 100A and laser unit 100B. **Therefore, it is desirable to subject signal P to peak validation function 204 to eliminate the false peaks or return signals. In particular, the method of peak validation disclosed in U.S. Patent 5,270,795, the disclosure of which is incorporated herein by**

reference, can be utilized to obtain validated signal V. Parameters stored in peak validation table 206 are used for peak validation function 204.

Validated signal V is subjected to calibration function 208 which accomplishes an intrinsic calibration , in a known manner, to correct for errors internal to the laser units 100A and laser unit 100B, such as optical distortions inherent in the lens system and the laser, and mechanical tolerances. The inputs of intrinsic calibration function 208 are peak validated signal V and video line signal L from the CCD of laser units 100A and laser unit 100B. A set of calibration equations, using parameters stored in calibration table 210, are used to convert these inputs into signal C which represents the x-y-z contour coordinates relative to the housing of laser units 100A and laser unit 100B only.

Signal C must be corrected for orientation of the mounting holes used to mount laser units 100A and laser unit 100B, tolerances in the mechanical parts, and the like. Furthermore because three laser units are calibrated into one global coordinate system, each laser unit is registered with respect to the others. **Such correction is accomplished by extrinsic calibration function 212, in a known manner. Extrinsic calibration function 212 is accomplished by equations using parameters stored in rotation matrix 214, in a known manner, to obtain calibrated signal C which represents absolute x-y-z coordinates.**

Each of laser units 100A and 100B produces data, or a signal, that corresponds to the shape, or contour, of the foot. Therefore, while the signals discussed above are treated as singular for the purpose of clarity, there are actually three components to each signal, i.e. three contour images. Although the images are registered by function 212, i.e. are in the same coordinate system, one contour point from laser unit 100A can be the same point detected by laser unit 100B. However, the points are stored at different addresses in memory unit 154 of computer 80. Re-sampling and merging function 216 produces one single set of data where redundant data points are eliminated and filtered to obtain output signal O that represents a single contour image of the foot. Function 216 can be accomplished by transformation to cylindrical coordinates or other known techniques such as working with surfaces (e.g. spline and surface fitting), generalized objects, or construction of a 3-D volumetric representation of the foot.

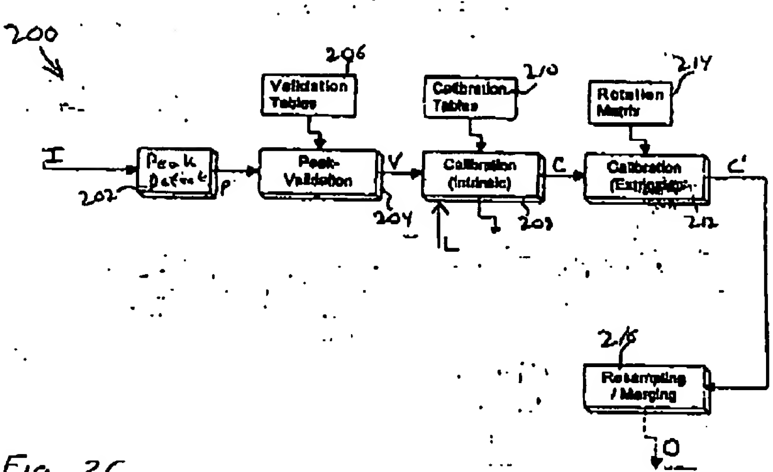

Fig. 26

Thus, as disclosed in the application as originally filed, the data is not calibrated by the "at least one laser scanning unit." It is calibrated when it reaches the computer or microprocessor. In the scanning phase the data points are gathered as either individual data points or a set of data that are thereafter processed against the calibration data table as an intrinsic calibration, which occurs at step 208 of Fig. 26. This intrinsic calibration is done "in a known manner" to correct for errors internal to the laser units, such as optical distortions inherent in the lens system and the mirrors. The intrinsic calibration includes a preliminary system assembly and setup phase, using special tools/ processes to build a table of calibration data to later apply to extrinsic calibration. The extrinsic calibration occurs *after* all of the scan data is gathered and processed, including the intrinsic calibrations, at 212.

Both the intrinsic and extrinsic calibration occur AFTER the data is gathered. One having ordinary skill in the art would understand the intrinsic and extrinsic calibration steps and would recognize that such occur after data gathering as taught in the specification and drawings as originally filed. Moreover, Applicants have incorporated numerous patents by reference that disclose calibrating parameters to remove distortions of the optical systems.

Given the above, Applicants respectfully submit that the application as originally filed meets all the statutory requirements of Section 112 and that the amendments to the claims fully address the Examiner's objections.

Claims 1, 4, and 6-29 have been rejected under 35 U.S.C. § 103(a), as being obvious in view of the combination of teachings of Sundman ('256) and Garuit-Lempirou ('803).

Claim 1 has been amended to recite the following feature:

> ...measuring surface coordinates of the undersurface detected by the at least one laser scanning unit by gathering data which directly correlates to accurate 2-dimensional distance measurements between the at least one laser scanning unit and the underside of the foot, wherein said data is not calibrated by said at least one laser scanning unit;

Claim 13 recites that "the at least one scanning unit including means for gathering non-calibrated data which directly correlates to accurate 2-dimensional distance measurements between the at least one laser scanning unit and the undersurface of the foot. Claim 17 recites "the at least one laser scanning unit including a first and second side portion extending upwardly from the base along the length thereof and means for gathering non-calibrated data." Thus, claims 1, 13 and 17 positively recited that the data is not being calibrated by the at least one scanning unit.

In contrast, the data points measured or scanned in the Garuet-Lempirou reference require calibration due to the deformation of the laser beams as they pass through the non-plane transparent wall. A review of the remainder of Garuet-Lempirou reveals that the patentee provides no guidance to modify those teachings mentioned above to perform a scanning requiring no calibration of the scanned foot by the scanning device. Therefore, the combination of teachings of Sundman ('256) and Garuit-Lempirou ('803) does not teach each and every feature of the claimed invention, and, further, does not provide one of ordinary skill in the prior art a suggestion to modify the teachings of Garuit-Lempirou to perform no calibration of the measured coordinates. Consequently, a prima facie case of obviousness is not present, and the rejections of claims 1, 4, and 6-29 should be withdrawn.

Claim 3 has been rejected under 35 U.S.C. § 103(a), as being obvious in view of the combination of teachings of Sundman ('256) and Garuit-Lempirou ('803) and further in view of Applicant's admission of prior art.

Applicants respectfully submit that the AAPA reference does not cure the deficiencies of Garuit-Lempirou and/or Sundman.

Based on the foregoing, Applicants submit that the application is now in condition for allowance. A passage to issuance is therefore earnestly sought.

Respectfully submitted,

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